



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

January 8, 2018

Bill Washburn
Helena Chemical Company
225 Schilling Blvd., Suite 300
Colliersville, TN 38017

Subject: Label Amendment – Revise First Aid Statement
Product Name: HM-1601 INSECTICIDE
EPA Registration Number: 5905-607
Application Date: January 5, 2018
Decision Number: 537141

Dear Mr. Washburn:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. If you have any questions, please contact Maggie Rudick by phone at 703-347-0257, or via email at rudick.maggie@epa.gov.

Page 2 of 2
EPA Reg. No. 5905-607
Decision No. 537141

Sincerely,

A handwritten signature in black ink, appearing to read 'Kable Bo Davis', enclosed within a hand-drawn oval.

Kable Bo Davis, Product Manager 3
Invertebrate and Vertebrate Branch 1
Registration Division (7505P)
Office of Pesticide Programs

Enclosure

RESTRICTED USE PESTICIDE

Toxic to fish and aquatic organisms.

For retail sale to and use only by certified applicators, or persons under their direct supervision and only for the uses covered by the certified applicator's certification.

GROUP 3A INSECTICIDE

HM-1601 Insecticide

For mixing directly with liquid fertilizer to control listed soil insect pests.

Active Ingredient: By Wt.

Bifenthrin*:	17.15%
Other Ingredients:	82.85%
Total:	100.00%

*Cis isomers 97% minimum, trans isomers 3% maximum.
This product contains 1.5 pounds active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN WARNING /AVISO

This label must be in the possession of the user at the time of application.
Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

FIRST AID	
If swallowed	<ul style="list-style-type: none"> • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person. • Call a poison control center or doctor immediately for treatment advice.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
<p align="center">HOTLINE NUMBER</p> <p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-(800)-331-3148 for Emergency medical treatment information.</p>	
<p align="center">NOTE TO PHYSICIAN</p> <p>This product is a pyrethroid. If large amounts have been ingested, the stomach and intestines should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.</p> <p align="center">For Emergency Assistance Call (800) 331-3148</p>	

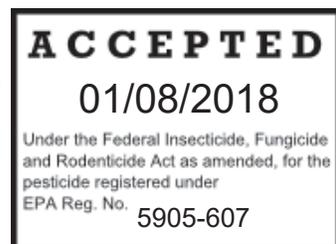
See [back panel][inside booklet] for additional precautionary information.

Note to Reviewer: all text in [] is optional and will depend on packaging.

Net Contents: _____
EPA Est. No. _____

AD 101617
EPA Reg. No. 5905-607

Manufactured for
Helena Chemical Company
225 Schilling Boulevard, Suite 300
Collierville, TN 38017



PRECAUTIONARY STATEMENTS

Hazards to Humans (and Domestic Animals)

Warning

May be fatal if swallowed. Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco or using the toilet. Wear protective eyewear, long sleeve shirt and long pants, socks and shoes. Remove and wash contaminated clothing before reuse.

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Personal Protective Equipment:

Applicators and other handlers (other than mixers and loaders) must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Mixers and Loaders must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations

Users should:

- Remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

This pesticide is extremely toxic to fish and aquatic invertebrates. Use with care when applying in areas adjacent to any body of water. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not make applications when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are foraging the treatment area.

The use of bifenthrin is prohibited in areas that may result in exposure of endangered species to bifenthrin. Prior to use in a particular county contact the local extension service for procedures and precautions to use to protect endangered species.

Physical and Chemical Hazards

Do not use or store near heat or open flame. Do not mix or allow coming in contact with oxidizing and reducing agent hazardous chemical reaction may occur.

DIRECTIONS FOR USE

RESTRICTED USE PESTICIDE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Do not apply this product through any type of irrigation system.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves, such as Barrier Laminate or Nitrile Rubber or Neoprene Rubber or Viton
- Shoes plus socks

Resistance Management

Some pests are known to develop resistance to insecticides that have been used repeatedly. While the development of insect resistance is well understood, it is not easily predicted. Therefore insecticides should be used in conjunction with the resistance management strategies in the area. Consult the local or State agricultural advisors for details. If insect resistance should develop in the area, this product used alone may not continue to provide sufficient levels of pest control. If the reduced levels of control cannot be attributed to improper application techniques, improper use rates, improper application timing, unfavorable weather conditions or abnormally high pest pressure, a resistant strain may have developed.

To reduce the potential for pesticide resistance, use this product in a rotation program with other classes of chemistry and modes of action. Always apply this product at the recommended rates and in accordance with the use directions. Do not use less than recommended label rates alone or in tank mixtures. Do not use reduced rates of the tank mix partner. For optimum performance, scout fields carefully and begin applications when pests are smaller rather than larger. If resistance is suspected, contact the local or State agricultural advisors.

Chemigation Use Directions

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, drip irrigation, or hand move irrigation systems. Do not apply this product through any other type of irrigation system. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system.

For LEPA irrigation a minimum of 0.75 inch of water per acre is recommended. Where non-emulsified oils are used as the diluents, 1 to 2 pints per acre is recommended.

Results from utilizing chemigation have been variable and depend upon the set up and calibration of equipment. Crop injury, lack of effectiveness or illegal residues in the crop can result from non-uniform distribution of treated water. Contact your State Agricultural Extension Service specialists, equipment manufacturers or other experts for consultation on the suitability of the equipment set up to obtain effective control of the target insect pests.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise. Failure to cease application during a mechanical stoppage may result in undesirable residues to adjacent areas.

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distributions is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment. HM-1601 Insecticide should be applied continuously for the duration of the water application. HM-1601 Insecticide should be diluted in sufficient volume to ensure accurate application over the area to be treated. When using chemigation, a minimum of 0.5 inches per acre of irrigation water is recommended.

Agitation generally is not required when a suitable diluent is used. A diluent test should be conducted to ensure that phase separation will not occur during dilution and application. Failure to achieve a uniform dilution throughout the time of application may result in undesirable residues or less than desirable control.

Application and Mixing Instructions

HM-1601 Insecticide is an insecticide/miticide that contains 1.5 pounds of bifenthrin per gallon. HM-1601 Insecticide can be mixed directly with liquid fertilizer or with water. The rate of application is variable according to pest pressure, timing of treatments and field scouting. Use lower rates under light to moderate pest infestations, and higher rates under heavier pest pressure. In arid climates, applications rates are generally higher. Fill the tank one-half full with liquid fertilizer or water and begin spray tank agitation. Add the proper amount of HM-1601 Insecticide, and then add the rest of the fertilizer or water. Maintain agitation until the mixture has been applied.

Shake well before using.

Agitate the HM-1601 Insecticide spray solutions in nurse tanks prior to moving the solution to spray system.

Cultivation within 10 feet of a water body is prohibited to allow for the growth of a vegetated filter strip.

In New York State this product may not be applied within 100 feet (using ground equipment) to 300 feet (using aerial equipment) of coastal marshes or streams that drain into coastal marshes.

HM-1601 Insecticide can be applied in-furrow with the seed, as a T-band (band over the open furrow), as a broadcast application, as a band over the row or as a transplant-water drench during setting. Refer to the tables below for pest control or suppression instructions.

HM-1601 Insecticide can be applied in-furrow with the seed, as a T-band (band over the open furrow), as a broadcast application, as a band over the row, as a pre-emergent (PRE) application, as a post plant incorporated (PPI) application, as a foliar application (includes chemigation), or as a transplant-water drench during setting.

Use rates in the individual crop sections for at-plant soil applications are listed as Fluid oz/1000 Linear ft based on 30 inch row spacings. For conversion to application rates applicable to other row spacings see the table below.

The maximum application rate per acre per season (pounds active ingredient /acre/season) as listed under the use directions for each crop must not be exceeded. This seasonal maximum includes at-plant plus foliar applications of HM-1601 Insecticide and other products containing bifenthrin.

For at-plant applications, HM-1601 Insecticide can be mixed with commonly used liquid starter or pop-up fertilizers. Follow liquid fertilizer recommendations regarding seed safety and use guidelines. Conduct a preliminary jar test using the appropriate ratio of fertilizer and HM-1601 Insecticide. Do not allow a tank mixture to set overnight, but if this occurs agitate tank mixture prior to application.

HM-1601 Insecticide Required Per Acre for Various Row Spacings					
Row Spacing	36"	30"	20"	15"	Twin Rows 30" centers
Linear row ft/acre	14,520 ft	17,424 ft	26,136 ft	34,848 ft	34,848 ft
Conversion					
0.2 Fluid oz/1000 Linear ft =	2.9 fl oz/acre	3.5 fl oz/acre	5.2 fl oz/acre	7.0 fl oz/acre	7.0 fl oz/acre
0.24 Fluid oz/1000 Linear ft =	3.5 fl oz/acre	4.2 fl oz/acre	6.3 fl oz/acre	8.4 fl oz/acre	8.4 fl oz/acre
0.3 Fluid oz/1000 Linear ft =	4.4 fl oz/acre	5.2 fl oz/acre	7.8 fl oz/acre	10.5 fl oz/acre	10.5 fl oz/acre
0.39 Fluid oz/1000 Linear ft =	5.7 fl oz/acre	6.8 fl oz/acre	10.2 fl oz/acre	13.6 fl oz/acre	13.6 fl oz/acre
0.49 Fluid oz/1000 Linear ft =	7.1 fl oz/acre	8.5 fl oz/acre	12.8 fl oz/acre		
0.73 Fluid oz/1000 Linear ft =	10.6 fl oz/acre	12.7 fl oz/acre			
0.78 Fluid oz/1000 Linear ft =	11.3 fl oz/acre	13.6 fl oz/acre			
0.98 Fluid oz/1000 Linear ft =	14.2 fl oz/acre	17.1 fl oz/acre			
1.47 Fluid oz/1000 Linear ft =	21.3 fl oz/acre	21.3 fl oz/acre			

Crop Rotation Restrictions

Crops for which bifenthrin tolerances exist may be rotated at any time. All other crops may be rotated 30 days following the final application of bifenthrin.

Tank-Mixtures

HM-1601 Insecticide may be applied in tank mixtures with other products approved for use on registered crops. Observe all restrictions and precautions which appear on the labels of these products. To insure successful applications, product compatibility tests should be conducted.

Maximum Allowable HM-1601 Insecticide Use Per Acre Per Season

Refer to the individual crop sections for maximum allowable HM-1601 Insecticide usage per acre per season. The maximum allowable use must include all registered use patterns including at-plant, soil

applied and/or foliar applications for the 12 months period. The 12 month period is to begin upon the initial application to the acre.

Buffer Zones

Vegetative Buffer Zones

Construct and maintain a minimum 10-foot-wide vegetative filter strip of grass or other permanent vegetation between the field edge and down gradient aquatic habitat (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or natural ponds; estuaries; and commercial fish farm ponds). Only apply products containing bifenthrin onto fields where a maintained vegetative buffer strip of at least 10 feet exists between the field and down gradient aquatic habitat.

For guidance, refer to the following publication for information on constructing and maintaining effective buffers: Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation Services. USDA, NRCS. 2000. Fort Worth, Texas. 21pp.

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_023819.pdf

Buffer Zone for Ground Application (groundboom, overhead chemigation, or airblast) – Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Buffer Zone for ULV Aerial Application - Do not apply within 450 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Buffer Zone for Non-ULV Aerial Application – Do not apply within 150 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, natural ponds, estuaries, and commercial fish ponds).

Spray Drift Requirements

Wind Direction and Speed

Only apply this product if the wind direction favors on-target deposition. Do not apply when the wind velocity exceeds 15 mph.

Temperature Inversion

Do not make aerial or ground applications into temperature inversions. Inversions are characterized by stable air and increasing temperatures with height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

Droplet Size

Use only Medium or coarser spray nozzles (for ground and non-ULV aerial application) according to ASAE (S572) definition for standard nozzles. In conditions of low humidity and high temperatures, applicators should use a coarser droplet size.

Additional Requirements for Ground Applications

Wind speed must be measured adjacent to the application site on the upwind side, immediately prior to application.

For ground boom applications, apply using a nozzle height of no more than 4 feet above the ground or crop canopy.

For airblast applications, turn off outward pointing nozzles at row ends and when spraying the outer two rows. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy.

Additional Requirements for Aerial Applications

The spray boom should be mounted on the aircraft as to minimize drift caused by wingtip or rotor vortices. The minimum practical boom length should be used and must not exceed 75% of the wing span or 80% rotor diameter.

Flight speed and nozzle orientation must be considered in determining droplet size.

Spray must be released at the lowest height consistent with pest control and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.

When applications are made with a cross-wind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind.

ARTICHOKE

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Cribrate Weevil (Grubs)	8.5	0.49	0.1	Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed.

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Cribrate Weevil Grubs	PRE 8.5	PRE 0.1	HM-1601 Insecticide can be tank mixed and applied with PRE herbicides.
	PPI 8.5	PPI 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Cribrate Weevil Artichoke Plume Moth	8.5	0.1	Apply when pest population reaches damaging threshold and repeat as necessary to maintain control, but not more often than 15 day intervals. Application by ground: Apply a full cover spray in a minimum of 75 gallons of finished spray per acre. Application by air: Apply specified dosage in a minimum of 10 gallons of finished spray per acre.
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not apply within 5 days of harvest. 			

Artichoke Restrictions:

- Do not apply more than 0.5 lb ai/A per season including at-plant, PPI, PRE and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

BRASSICAS, Head and Stem (Crop Subgroup 5A)

Including: Broccoli, Chinese, Broccoli (gailon, white flowering broccoli), Brussels Sprouts, Cauliflower, Cavalo broccoli, Kohlrabi, Cabbage, Chinese Cabbage (napa), and Chinese Mustard Cabbage (gai choy)

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Army cutworm Armyworm species Cabbage maggot Cutworm species Grubs Root aphids Root maggot Seedcorn maggot Wireworm	3.4 - 6.8	0.2 - 0.39	0.04 - 0.08	Apply as a 5-7 inch band (T-band) over the open seed furrow, or in-furrow with the seed. Cutworm and armyworm treatments may be applied as broadcast treatments to the soil surface. May be applied through transplant water at time of transplanting.
At-Plant Restrictions:				
<ul style="list-style-type: none"> Do not apply more than 0.1 pound active ingredient per acre per season as an at-plant application. 				

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Root Aphids Root Maggots Seed corn maggot Wireworms Garden Symphylans	PRE 3.4 – 6.8	PRE 0.04 – 0.08	HM-1601 Insecticide can be tank mixed and applied with PRE labeled herbicides and fungicides for pre-transplant application.
	PPI 3.4 – 6.8	PPI 0.04 - 0.08	Incorporation of HM-1601 Insecticide should not be incorporated any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting or transplant depth.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Armyworms Cutworms Corn Earworm Crickets Cucumber Beetles Diamondback Moth Flea Beetles Ground Beetles Imported Cabbageworm Leafhoppers Loopers Saltmarsh Caterpillar Stink Bugs Thrips	2.8 – 8.5	0.033 – 0.1	Thorough coverage is necessary to attain acceptable control. Make application at the onset of infestation reaching locally determined economic thresholds. Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1 - 2 quarts of emulsified oil may be substituted for 1 - 2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.

Tobacco Budworm Whitefly Wireworm (adults) Black burrowing bug			
Banks Grass Mite Carmin Mite Lygus Species Pacific Spider Mite Twospotted Spider Mite	6.8 – 8.5	0.08 – 0.1	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make more than 5 applications after bloom. Do not make applications less than 7 days apart. Do not apply within 7 days of harvest. 			

Brassica, Head and Stem (Crop Subgroup 5A) Restrictions:

- Do not apply more than 0.5 lb ai/A per season including At-Plant, PRE, PPI, and Foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

BUSHBERRIES (Crop Subgroup 13-07B)

Including: Aronia berry; blueberry, highbush; blueberry, lowbush; buffalo currant; Chilean guava; cranberry, highbush; currant, black; currant, red; elderberry; European barberry; gooseberry; honeysuckle, edible; huckleberry; Jostaberry; Juneberry (Saskatoon berry); Lingonberry; native currant; Salal; sea buckthorn; cultivars, varieties, and/or hybrids of these

At-Plant

PEST	USE RATES		DIRECTIONS
	Fl Oz/acre	Pound a.i./acre	
Wireworm White Grubs	8.5	0.1	Apply as a (T-band) over an open furrow immediately prior to transplanting, or in-furrow with the transplant in sufficient water for planting. May also be applied as a solid drench with transplant water at time of transplanting

PPI (Site Preparation) & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Wire worm White Grubs Blueberry Maggot (larvae)	PRE 3.4 – 8.5	PRE 0.04 – 0.1	HM-1601 Insecticide can be tank mixed and applied with PRE herbicides
	PPI 8.5	PPI 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI herbicides, insecticides and fungicides where allowed. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended planting depth.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Blueberry maggot Fruitworms Japanese beetle Leafhoppers Leaf rollers Lecanium scale (crawlers) Obliquebanded leaf roller Plum curculio Red banded leafroller Spanworm Variegated leafroller Spotted Winged Drosophila	3.4 – 8.5	0.04 - 0.1	Apply in a minimum of 2 gallons finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Make application at the onset of infestation reaching locally determined economic thresholds.
Carmine Mite Lygus species Pacific Spider Mite Twospotted Spider Mite	6.8 - 8.5	0.08 - 0.1	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 7 days apart. Do not apply within 1 day of harvest. 			

Bushberries (Crop Subgroup 13-07B) Restrictions:

- Do not apply more than 0.5 lb ai/A per season including at-plant, PRI, PRE and foliar application of HM-1601 Insecticide and other bifenthrin containing products.

CANE BERRIES (Crop Subgroup 13-07A)

Including: Canberries including Bingleberries, Blackberries, Dewberries, Loganberries, Lowberries, Marionberries, Olallieberries, Raspberries, and Youngberries.

At-Plant

PEST	USE RATES		DIRECTIONS
	Fl Oz/acre	Pound a.i./acre	
Wireworm White Grubs	8.5	0.1	Apply as a (T-band) over an open furrow immediately prior to transplanting, or in-furrow with the transplant in sufficient water for planting. May also be applied as a solid drench with transplant water at time of transplanting

PPI (Site Preparation) & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Wire worm White Grubs	PRE 8.5	PRE 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI pesticides labeled for site preparation. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended planting depth.
	PPI 8.5	PPI 0.1	

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Leafrollers Orange Tortrix Root Weevils Spotted Winged Drosophila	4.3 – 8.5	0.05 - 0.1	Apply in a minimum of 2 gallons finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. Thorough coverage is essential to achieve control. Make application at the onset of infestation reaching locally determined economic thresholds.
Raspberry Crown Borer Spider Mites	8.5	0.1	Apply by air or ground equipment using sufficient water to obtain full coverage of foliage (minimum of 10 gallons per acre by air and 50 gallons per acre by ground). One application may be made pre-bloom and a second application may be made post-bloom. For Crown Borer, apply 0.1 lb ai/a post-harvest (fall) or pre bloom (spring), as a drench application directed at the crown of plants in a minimum of 200 gallons water per acre. Greater efficacy is observed at higher gallons (up to 400 gallons/a) or in an application prior to a significant rainfall event. Do not make both pre bloom foliar and pre bloom drench applications.
Foliar Restrictions: <ul style="list-style-type: none"> • One application may be made pre bloom and a second application may be made post bloom. • Do not apply within 3 days of harvest. 			

Caneberries (Crop Subgroup 07A) Restrictions:

- Do not exceed 0.2 lb ai/A per season including at-plant, PRI, PRE, and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

CANOLA, CRAMBE, RAPESEED

At-Plant

PEST	USE RATES		DIRECTIONS
	Fl Oz/acre	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species Grape colaspis Grubs Root aphids Seed corn beetle Seed corn maggot Stalkborer Sugarcane beetle True armyworm Wireworm	6.83	0.08	Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed.

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species	PRE 6.83	PRE 0.08	HM-1601 Insecticide can be tank mixed and applied with PRE herbicides
Grape colaspis Grubs Root aphids Seed corn beetle Seed corn maggot Stalkborer Sugarcane beetle True armyworm Wireworm (PPI only)	PPI 6.83	PPI 0.08	HM-1601 Insecticide can be tank mixed and applied with PPI herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Armyworms Cutworms Diamondback Moth Loopers Other Lepidopterous Larvae Flea Beetle Flea Hopper Grasshopper Plant Bug Stink Bugs Seedpod Weevil Thrips Whitefly	2.8 – 3.4	0.033 – 0.04	Apply in a minimum of 2 gallons finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1 - 2 quarts of emulsified oil may be substituted for 1 - 2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 14 days apart. Do not apply within 35 days of harvest. 			

Canola, Crambe, and Rapeseed Restrictions:

- Do not apply more than 0.08 lb ai/A per season including at-plant, PRI, PRE, and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

CILANTRO, CORIANDER

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft	Pound a.i./acre	
Armyworm species Cutworm species Flea beetle larvae Wireworm	3.4 – 6.8	0.2 – 0.39	0.04 – 0.08	Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band) in-furrow with the seed, or broadcast to the soil surface.
At-plant Restrictions:				
<ul style="list-style-type: none"> Do not apply more than 0.1 lb ai/A per season as an at-plant application. 				

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species	PRE 3.4 - 6.8	PRE 0.04 - 0.08	HM-1601 Insecticide can be tank mixed and applied with PRE herbicides
Grape colaspis Grubs Root aphids Seed corn beetle Seed corn maggot Wireworms (PPI Only)	PPI 3.4 - 6.8	PPI 0.04 - 0.08	HM-1601 Insecticide can be tank mixed and applied with PPI herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Beet Armyworm Cabbage Looper Cutworm Flea beetle Grasshoppers Leafminer Saltmarsh caterpillar Spotted Cucumber beetle Thrips Whitefly	2.8 – 8.5	0.033 – 0.1	Apply using sufficient water to obtain uniform coverage. Apply with ground equipment using a minimum of 10 gallons of finished spray per acre or a minimum of 2 gallons per acre by aircraft
Two Spotted Spider Mite	6.8 – 8.5	0.08 – 0.1	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 7 days apart. Do not apply within 3 days of harvest. 			

Cilantro and Coriander Restrictions:

- Do not apply more than 0.5 lb ai/A per season including at-plant, PPI, PRE and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

CITRUS (Crop Group 10-10)

Including: Australian desert lime; Australian finger-lime; Australian round lime; Brown River finger lime; calamondin; citron; citrus hybrids; grapefruit; Japanese summer grapefruit; kumquat; lemon; lime; Mediterranean mandarin; mount white lime; New Guinea wild lime; orange, sour; orange, sweet; pummelo; Russell River lime; satsuma mandarin; sweet lime; tachibana orange; Tahiti lime; tangelo; tangerine (mandarin); tangor; trifoliolate orange; unqi fruit; cultivars, varieties, and/or hybrids of these

Use Directions:

When applied as directed, HM-1601 Insecticide will provide control of the following pests listed in the table below.

Apply HM-1601 Insecticide by ground equipment to bare soil beneath citrus trees. HM-1601 Insecticide must be uniformly applied from the trunk to the drip line of tree. Apply in a minimum of 40 gallons of dilute spray per acre.

Greater spray volume should insure greater uniformity of coverage. A pre- and post-application irrigation may aid in the uniformity of coverage as well.

HM-1601 Insecticide protects citrus tree roots from Diaprepes and other citrus root weevil feeding by forming a barrier which provides contact activity on newly hatched larvae (neonates). As citrus root weevil eggs hatch in new foliage, neonates fall to the soil surface beneath the tree and come in contact with HM-1601 Insecticide as they attempt to burrow into the root zone. Disturbance of the soil beneath trees should be minimized.

Timing of HM-1601 Insecticide applications is critical. Current information suggests that peak emergence of adult Diaprepes Weevil varies by citrus growing region and these emergence peaks can be dramatically affected by environmental factors, such as soil moisture. Typically, two peaks are observed for Diaprepes, first in spring then late summer or early fall. Southern Blue- Green and Blue-Green Citrus Weevils and Fuller Rose Beetle typically exhibit a single emergence peak in the spring. Brown and Little Leaf Notchers typically exhibit three emergence peaks, spring, summer and fall. Since emergence varies seasonally and by location, timing of HM-1601 Insecticide application can be accurately forecast by observing adults. Adults are most active early morning and late afternoon; numbers can be estimated by trapping throughout spring and summer (emergence periods). Egg laying will occur for 8 to 10 weeks following adult emergence from the soil; larval invasion of the soil will begin 2 to 3 weeks following adult emergence. It is critical to have the HM-1601 Insecticide soil barrier in place prior to drop of the neonates.

HM-1601 Insecticide is one of several effective tools in an integrated pest management program for Citrus Root Weevils. Application of HM-1601 Insecticide should be used in conjunction with good cultural practices, biological control of larvae and foliar control of adults. Consult local university extension personnel for current information to protect citrus trees from Citrus Root Weevils and other pests.

Apply to individual citrus resets, when not in solid planted rows, using hand-gun or shielded sprayer. Peak emergence of Diaprepes root weevil generally occurs in the spring. Depending on weather conditions, a minor emergence of Diaprepes root weevil may also occur in the fall. If the citrus grove to be treated is in an area where weather conditions are conducive to primary emergence occurring in the spring, 42.5 fluid ounces formulated product should be used to obtain the longest residual management of Diaprepes root weevil. If the citrus grove to be treated is in an area where weather conditions will promote more than one peak of pest emergence, 21.25 fluid ounces formulated product can be applied early season and 21.25 fluid ounces formulated product can be applied later in the season.

BARE SOIL SURFACE UNDER DRIP LINE

PEST	USE RATE		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Asian cockroach Fire ants (<i>Solenopsis species</i>)	8.5 - 21.25	0.1 - 0.25	Apply the specified dosage in a minimum of 40 gallons of finished spray per acre.
Blue Green Citrus Root Weevil Brown Leaf Notcher Diaprepes Root Weevil Little Leaf Notcher Southern Blue Green Citrus Root Weevil	21.25- 42.5	0.25 - 0.5	

Restrictions:

- Do not allow any application of HM-1601 Insecticide to contact fruit or foliage.
- Do not apply more than a total of 42.5 fluid ounces of formulated product (0.5 pound active ingredient) per acre per year.
- Do not apply by air

CORN

Field Corn (Grain and Silage), Popcorn, Field Corn Grown for Seed, Sweet Corn, Sweet Corn Grown for Seed

Heavy Corn Rootworm Pressure Management Program: In areas where large corn rootworm populations are present, a multi-approach system may be needed for optimal pest management. However, if the population level is not known and if a corn rootworm adult scouting program along with threshold adult control measures were not completed during the previous growing season, then utilize a maximum dosage seed treatment program or genetically modified corn rootworm resistant hybrid in addition to HM-1601 Insecticide.

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Corn rootworm larvae (Northern, Southern and Western)	6.8 – 17.0	0.39 - 0.98	0.08 - 0.2	Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed. For Army cutworm, Stalkborer, Cutworm species, True armyworm or Armyworm species, apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), in-furrow with the seed, or broadcast to the soil surface.
Army cutworm Armyworm species Cutworm species Grape colaspis Grubs Root aphids Seed corn beetle Seed corn maggot Stalkborer Sugarcane beetle True armyworm Wireworm	3.4 – 13.6	0.2 - 0.78	0.04 - 0.16	

At-Plant Restrictions:

- Do not apply more than 0.2 pound active per acre per season as an at-plant application.
- For field corn - Do not apply more than 0.3 lb ai/A per season including ppi, at-plant, pre-emergence, and foliar applications of other bifenthrin products (such as Brigade 2EC).
- For sweet corn - Do not apply more than 0.2 lb ai/A total per season including ppi, at-plant, pre-emergence, and foliar applications of other bifenthrin products (such as Brigade 2EC).

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Armyworm species Black Cutworm Grape colaspis Seed corn beetle Seed corn maggot White Grub Wireworm	PPI 4 to 5.3	PPI 0.047 - 0.062	HM-1601 Insecticide can be tank mixed and applied with PPI herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth.

Armyworm species Black Cutworm Seed corn beetle Stalkborer	PRE 3.4	PRE 0.04	HM-1601 Insecticide can be tank mixed and applied with PRE herbicides
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Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Army Cutworm Beet Armyworm Cereal Leaf Beetle Chinch Bug Common Stalk Borer Corn Earworm1 Corn Rootworm Adults Cucumber Beetle Adult Cutworm species European Corn Borer ² Fall Armyworm Flea Beetle Grasshoppers Greenbug Japanese Beetle Adult Sap Beetle Southern Armyworm Southern Corn Leaf Beetle Southwestern Corn Borer ² Stinkbugs Tarnished Plant Bug True Armyworm or Armyworm species Webworms Western Bean Cutworm Yellowstriped Armyworm	2.8 – 8.5	0.033 - 0.1	Apply in a minimum of 2-5 gallons of finished spray per acre by aircraft or in a minimum of 10 gallons per acre with ground equipment. To improve control by aircraft, use 5 gallons of finished spray per acre particularly when initial populations are heavier than normal. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control. ¹To Control Ear Attacking Pests: Apply HM-1601 Insecticide just before silking and repeat as necessary to maintain control. ²Southwestern Corn Borer, European Corn Borer: Make application for corn borer control with initial application at or shortly before egg hatch. For Control of Other Insect Pests: Apply when pests first appear and repeat as necessary. ³For Control of Mites: Apply for Banks Grass Mite control when colonies first form prior to leaf damage or discoloration and before dispersal above the bottom third of the plant. For Twospotted Spider Mite and Carmine Mite control, apply when colonies first form prior to leaf damage or discoloration and before widespread mite dispersal throughout the canopy. Higher rates will be necessary for heavier initial populations and corn under heat or drought stress. Field experience with dimethoate at 0.5 lb. active per acre in tank mixture has demonstrated good control under these conditions. For Mite Control in Texas, New Mexico, Oklahoma, and Arizona: Apply in a minimum of 5 gallons of finished spray per acre by aircraft or in a minimum of 10 gallons per acre with ground equipment
Banks Grass Mite ³ Carmine Mite ³ Twospotted Spider Mite ³	6.8 – 8.5	0.08 - 0.1	

Foliar Restrictions:

- For field corn
 - Do not apply within 30 days of harvest for field corn (grain and silage), popcorn, field corn grown for seed.
 - Do not graze livestock in treated areas or cut treated crops for feed within 30 days of the last application for field corn (grain and silage), popcorn, field corn grown for seed.
- For sweet corn
 - Do not apply within 1 day of harvest for sweet corn or sweet corn grown for seed.
 - Do not graze livestock in treated areas or cut treated crops for feed within 1 day of the last application for sweet corn or sweet corn grown for seed.
- Use of ultra low volume (ULV) application on corn is prohibited.
- Do not make aerial or ground applications to corn if heavy rainfall is imminent.

Corn Restrictions:

- For field corn
 - Do not apply more than 0.3 lb ai/A total per season including ppi, at-plant, pre-emergence, and foliar applications of HM-1601 Insecticide and other bifenthrin products.
- For sweet corn
 - Do not apply more than 0.2 lb ai/A total per season including ppi, at-plant, pre-emergence, and foliar applications of HM-1601 Insecticide and other bifenthrin products.

COTTON

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Cutworm spp White Grub Wireworm Grape colaspis Root Maggot Seedcorn Maggot	1.7 – 8.5	0.1 – 0.5	0.02 – 0.1	Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed.

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Cutworm species	PRE 3.4 – 8.5	PRE 0.04 - 0.1	
Cutworm species White Grub Wireworm Grape colaspis Root maggot Seedcorn maggot	PPI 3.4 – 8.5	PPI 0.04 – 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
European Corn Borer Soybean (Banded) Thrips Tobacco Thrips	1.7 – 8.5	0.02 - 0.1	Apply as needed using sufficient water to obtain uniform coverage. Apply with ground equipment using a minimum of 5 gallons of finished spray per acre or a minimum of 1 gallon per acre by aircraft. HM-1601 Insecticide may be applied in water or refined vegetable oil (soybean/cottonseed).
Boll Weevil ¹ Bollworm Cabbage Looper Cotton Aphid ² Cotton Fleahopper Cotton	5.1 – 8.5	0.06 - 0.1	Application in Water: Apply in a minimum of 5 gallons per acre with ground equipment or 1 gallon per acre by aircraft. When applying by air, 1 quart of emulsified oil may be substituted for one quart of water in the finished spray.

Leafperforator Cutworms Fall Armyworm Plant Bugs Saltmarsh Caterpillar Southern Garden Leafhopper Stink Bugs Tobacco Budworm Whitefly Yellow Striped Armyworm			<p>ULV Application: Apply the recommended rate of HM-1601 Insecticide in refined vegetable oil in a minimum of 1 quart of finished spray per acre with aircraft calibrated to give adequate coverage.</p> <p>¹Boll Weevil: Apply HM-1601 Insecticide at an interval of 3 to 4 days until pest numbers are reduced to acceptable levels.</p> <p>²Aphids and Mites: Apply when pests first appear. Repeat as necessary to maintain control. Higher rates will be required once a damaging threshold is established.</p>
<p>Foliar Restrictions:</p> <ul style="list-style-type: none"> Do not apply within 14 days of harvest. Do not graze livestock in treated areas or cut treated crops for feed. 			

Cotton Restrictions:

- Do not apply more than 0.5 lb ai/A per season including at-plant, PRE, PPI, and foliar applications of HM-1601 Insecticide and other bifenthrin containing products in all states except in California
 - For California do not apply more than 0.3 pounds active per acre per season.
- Do not make more than 10 synthetic pyrethroid applications (of one product or combination of products) to a cotton crop in one growing season. Synthetic pyrethroid products include but are not limited to Ambush®, Ammo®, Asana® XL, Baythroid®, Baythroid XL®, Brigade®, Danitol®, Declare®, Discipline®, Fanfare®, Karate®, and Mustang®.

CUCURBITS (Crop Group 9)

Including: Chayote (fruit), Chinese waxgourd (Chinese preserving melon), Citron melon, Cucumber, Gherkin, Gourd, edible *Lagenaria* species (includes hyotan, cucuzza), *Luffa* species (includes hechima, Chinese okra), *Momordica* species (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), Muskmelon (hybrids and/or cultivars of *Cucumis melo*) (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon), Pumpkin (*Cucurbita* species), Squash, summer (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini), Squash, winter (includes butternut squash, calabaza, hubbard squash (*C. mixta*; *C. pepo*) includes acorn squash, spaghetti squash), Watermelon (includes hybrids and/or varieties of *Citrullus* species).

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Cucumber beetle larvae	6.8 – 8.5	0.39 - 0.49	0.08 – 0.1	Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed. May be applied through transplant water at time of transplanting.
Army cutworm Armyworm species Cutworm species Flea beetle larvae Grubs True Armyworm Wireworm True armyworm	3.4 – 6.8	0.2 – 0.39	0.04 – 0.08	To control cucumber beetle larvae, apply as a 5 to 7 inch band over an open furrow (T-band), or in-furrow with the seed. To control wireworm, grubs, and flea beetle larvae, apply as a 5 to 7 inch band over an open furrow (T-band), or in-furrow with the seed or transplant

				To control army cutworm, cutworm species, true armyworm and armyworm species, apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), in-furrow with the seed, broadcast to the soil surface or banded over the row.
At Plant Restrictions:				
<ul style="list-style-type: none"> Do not apply more than 0.1 lb ai/A per season as an at-plant application 				

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Seed Corn Maggot Wireworms Army cutworm Armyworm species Cutworm species Flea beetle larvae Grubs True Armyworm True armyworm	PRE 6.8 – 8.5	PRE 0.08 - 0.1	HM-1601 Insecticide can be tank mixed and applied with PRE pesticides. Apply through drip of drip tape. Apply when soil is moist towards the end of the irrigation run.
	PPI 6.8 – 8.5	PPI 0.08 – 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI labeled pesticides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended depth. Apply through drip or Drip tape. Apply when soil is moist towards the end of the irrigation run.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Armyworms Cabbage Looper Corn Earworm Cucumber beetles Cutworms Grasshopper Leafhoppers Melonworm Pickleworm Plant Bug Rindworm Squash Bugs Squash Vine Borer Stink Bugs Tobacco Budworm	3.4 – 8.5	0.04 - 0.1	Thorough coverage is necessary to attain acceptable control. Make application at the onset of infestation reaching locally determined economic thresholds. Apply in a minimum of 5 gallons of finished spray per acre by air or in a minimum of 20 gallons per acre with ground equipment. When applying by air 1 2 quarts of emulsified oil may be substituted for 1 – 2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.
Carmine Mite Lygus species Mite Twospotted Spider Mite Whitefly	6.8 – 8.5	0.08 - 0.1	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make more than two applications after bloom. Do not make applications less than 7 days apart Do not apply within 3 days of harvest 			

Cucurbits (Crop Group 9) Restrictions:

- Do not apply more than 0.3 lb ai/A per season including At-plant, PRE & PPI, and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

DRIED BEANS AND PEAS (Crop Subgroup 6C)

Including: Dried cultivars of: Bean (Lupinus); Bean (Phaseolus), Field bean, Kidney bean, Lima bean (dry), Navy bean, Pinto bean, Tepary bean; Bean (Vigna), Adzuki bean, Blackeyed pea, Catjang, Cowpea, Crowder pea, Moth bean, Mung bean, Rice bean, Southern pea, Urd bean; Broad bean (dry), Chickpea, Guar, Lablab bean, Lentil; Pea (Pisum), Field pea, Pigeon pea, purple hulled peas.

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Corn rootworm larvae	6.8 – 8.5	0.39 - 0.49	0.08 – 0.1	Apply as a 5 to 7 inch band over the row on the soil surface, 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed. Apply broadcast to the soil surface for control of Army cutworm, Cutworm species, True armyworm, or Armyworm species.
Army cutworm Armyworm species Cutworm species Grape colaspis Grubs Root maggot True armyworm Wireworm	3.4 – 6.8	0.2 – 0.39	0.04 – 0.08	
At Plant Restrictions:				
<ul style="list-style-type: none"> Do not apply more than 0.1 lb ai/A per season as an at-plant application 				

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species Grape colaspis Grubs Root maggot True armyworm Wireworm (PPI only)	PRE 6.8 – 8.5	PRE 0.08 - 0.1	HM-1601 Insecticide can be tank mixed and applied with PRE herbicides. Apply in a minimum of 10 gallons per acre. .
	PPI 6.8 – 8.5	PPI 0.08 – 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth. Apply in a minimum of 10 gallons per acre.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aster Leafhopper Flea Beetle Grasshoppers Leafhoppers	2.1 – 8.5	0.025 - 0.1	Apply in a minimum of 2 gallons finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. Thorough coverage is essential to achieve control.
Alfalfa Caterpillar Aphids Bean Leaf Beetle	2.8 – 8.5	0.033 - 0.1	

Beet Armyworm Cloverworm Corn Earworm Corn Rootworm (Adult) Cucumber Beetles Cutworms European Corn Borer Fall Armyworm Grasshoppers Imported cabbageworm Japanese beetle (Adult) Leafminer Loopers Mexican Bean Beetle Pea Leaf Weevil Pea Weevil Plant Bug Saltmarsh caterpillar Sap Beetle Southern Armyworm Stink Bugs Tarnished Plant Bug Thrips Twospotted Spider Mite Tobacco budworm Webworms Western Bean Cutworm Whitefly Yellowstriped Armyworm			When applying by air 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control
Banks Grass Mite Carmine Mite Lygus Species	6.8 - 8.5	0.08 – 0.1	
Foliar Restrictions: <ul style="list-style-type: none"> Do not apply within 14 days of harvest Do not make applications less than 7 days apart 			

Dried Beans and Peas (Crop Subgroup 6C) Restrictions:

- Do not apply more than 0.2 lb ai/A to peas, or 0.3lb ai/A to beans per season including At-Plant, PRE & PPI, and Foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

EGGPLANT

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species Grubs Root maggot True armyworm Wireworm	3.4 – 6.8	0.2 – 0.39	0.04 – 0.08	Apply as a 5 to 7 inch band over the row on the soil surface, 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed. Apply broadcast to the soil surface for control of Army cutworm, Cutworm species, True armyworm, or Armyworm species.
At Plant Restrictions:				
<ul style="list-style-type: none"> Do not apply more than 0.1 lb ai/A per season as an at-plant application 				

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species Grubs Root maggot True armyworm Wireworm (PPI only)	PRE 8.5	PRE 0.1	HM-1601 Insecticide can be tank mixed and applied with PRE pesticides. Post Plant Soil Applied: Apply through drip or Drip tape. Apply when soil is moist towards the end of the irrigation run.
	PPI 3.4 – 8.5	PPI 0.04 – 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI labeled pesticides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended depth. Post Plant Soil Applied: Apply through drip or Drip tape. Apply when soil is moist towards the end of the irrigation run.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Armyworms (Including Beet) Armyworm Fall Armyworm Southern Cabbage Looper Colorado Potato Beetle Corn Earworm Cucumber Beetle Cutworms European Corn Borer Flea Beetle Leafminers Loopers Pepper weevil Plant Bug	2.8 – 8.5	0.033 - 0.1	Thorough coverage is necessary to attain acceptable control. Make application at the onset of infestation reaching locally determined economic thresholds. Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.

Stink Bug Thrips Tomato Hornworm Tomato Pinworm Vegetable Leafminer Whitefly Yellowstriped Armyworm			
Banks Grass Mite Broad Mite Carmine Mite Lygus species Pacific Spider Mite Twospotted Spider Mite	6.8 – 8.5	0.08 - 0.1	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not apply within 7 days of harvest Do not make applications less than 7 days apart 			

Eggplant Restrictions:

- Do not apply more than 0.2 lb ai/A per season including At-Plant, PRE & PPI, and Foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

GRAPES

At-Plant

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Grape Phylloxera (suppression only) White Grubs Wireworms	8.5	0.1	Apply at time of planting over an open furrow in sufficient water for planting. May be applied through transplant water at time of transplanting.

PPI (Site Preparation) & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Vine Mealybug Grape Phylloxera (suppression only)	PRE 8.5	PRE 0.1	HM-1601 Insecticide can be tank mixed and applied with PRE pesticides. Post Plant Soil Applied: Apply through drip or Drip tape. Apply when soil is moist towards the end of the irrigation run.
	PPI 8.5	PPI 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI labeled pesticides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended depth. Post Plant Soil Applied: Apply through drip or Drip tape. Apply when soil is moist towards the end of the irrigation run.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Cutworms Eastern Grape Leafhopper Grape Berry Moth Japanese Beetles Adults Lady Beetle (Scymnus spp.) Variegated Leafhopper Western Grape Leafhopper Grapevine root borer	4.3 – 8.5	0.05 - 0.1	Thorough coverage is necessary to attain acceptable control. Make application at the onset of infestation reaching locally determined economic thresholds. Apply in a minimum of 10 gallons of finished spray by air or in a minimum of 25 gallons of finished spray with ground equipment. When applying by air, 1 to 2 quarts of emulsified oil may be substituted for 1 to 2 quarts of water in the finished spray. When pest pressure is moderate to severe, use higher rate.
Black Vine Weevil Glassywinged Sharpshooter Twospotted Spider Mite	8.5	0.1	HM-1601 Insecticide can be tank mixed and applied with PPI labeled pesticides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended depth. Post Plant Soil Applied: Apply through drip or Drip tape. Apply when soil is moist towards the end of the irrigation run.
Foliar Restrictions: <ul style="list-style-type: none"> Do not apply within 30 days of harvest. 			

Grape Restrictions:

- Do not apply more than 0.10 lb ai per acre per season including at-plant, PPI, PRE and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

HEAD LETTUCE

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Rootworm larvae	6.8 - 8.5	0.39 – 0.49	0.08 - 0.1	Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed.
Army cutworm Armyworm species Bulb mites Cutworm species Grubs Lettuce root aphid Root maggot True armyworm Wireworm	3.4 – 6.8	0.2 – 0.39	0.04 – 0.08	Apply broadcast to the soil surface for control of Army cutworm, Cutworm species, True armyworm, armyworm species, or bulb mites.
At Plant Restrictions: <ul style="list-style-type: none"> Do not apply more than 0.1 lb ai/A per season as an at-plant application. 				

PPI

PEST	USE RATES	
	Fluid oz/acre	Pound a.i./acre
Lettuce Root Aphid Garden Symphians	6.8 – 8.5	0.08 – 0.1

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Armyworms Corn earworm Cucumber Beetles Cutworms Diamondback Moth Flea Beetles Imported Cabbageworm Leafhoppers Loopers Salt Marsh Caterpillar Stink Bug species Tobacco Budworm Whitefly	2.8 – 8.5	0.033 - 0.1	Apply in water as necessary for insect control using a minimum of 15 gallons of finished spray per acre with ground equipment and 5 gallons per acre by air. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control. HM-1601 Insecticide can be tank mixed and applied with PPI labeled pesticides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended depth.
Carmine Mite Lygus Species Twospotted Spider Mite	6.8 - 8.5	0.08 - 0.1	Post Plant Soil Applied: Apply through drip or Drip tape. Apply when soil is moist towards the end of the irrigation run.
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 7 days apart. Do not apply within 7 days of harvest. 			

Head Lettuce Restrictions:

- Do not apply more than 0.5 lb ai/A per season including At-Plant, PRE & PPI, and Foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

HOPS**At-Plant**

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Grape colaspis Rootworms Sweet potato flea beetle White grub Wireworms	5.1 – 8.5	0.06 – 0.1	Apply in a T-band that ensures coverage of the entire furrow, immediately prior to planting, or at planting. May also be applied as a soil drench with transplant water at time of transplanting. Apply in a minimum of 10 gallons per acre of spray.

Lay-By

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Grape colaspis Rootworms Wireworms White grub	5.1 – 8.5	0.06 – 0.1	Apply HM-1601 Insecticide to the transplant area and incorporate with cultivation equipment set to throw soil towards the hill. Apply in a minimum of 10 gallons per acre of Spray.

PPI

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Grape colaspis Rootworms Wireworms White grub	PPI 5.1 – 8.5	PPI 0.06 – 0.1	Apply HM-1601 Insecticide to the transplant area and incorporate to planting depth. Apply in a minimum of 10 gallons per acre of spray. May be applied as a broadcast application or an incorporated band application

PRE & post Plant Soil Applied

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Grape colaspis Rootworms Wireworms White grub	PRE 5.1 – 8.5	PRE 0.06 – 0.1	Apply through drip or Drip tape. Apply when soil is moist towards the end of the irrigation run.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Armyworms Cutworms Leafrollers Loopers	5.1 – 8.5	0.06 - 0.1	Application by ground: For best results, full coverage is essential. Early season recommend 100 – 150 gallons of spray per acre. Late season recommend 200 – 250 gallons of spray per acre. For Root Weevil control, make a directed spray to the base of the plant. Spray up the vine 3 feet and the soil surface 1.5 to 2 feet on either side of the plant. Application by air for late season control of twospotted spider mites: Apply no less than 6.4 oz (0.1 lb ai) per application in a minimum of 10 gallons per acre.
Root Weevils	4.3 – 8.5	0.05 to 0.1	
Twospotted spider mite	8.5	0.1	
Foliar Restrictions: <ul style="list-style-type: none"> Do not exceed 0.1 lb ai per acre per foliar application. Do not make applications less than 21 days apart Do not apply within 14 days of harvest. 			

Hops Restrictions:

- Do not exceed 0.3 lb ai per acre per season including at-plant, PRE, PPI, Layby and foliar application of HM-1601 Insecticide and other bifenthrin containing products. .
- Use of ultra low volume (ULV) application on hops is prohibited.

LEAFY BRASSICAS (Crop Group 5B), TURNIP GREENS

Including: Broccoli Raab, Bok Choy, Collards, Kale, Mizuna, Mustard Greens, Mustard Spinach, Rape Greens, Turnip Greens

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Rootworm larvae	6.8 – 8.5	0.2 – 0.39	0.06 – 0.1	Apply as a 5-7 inch band over the row on the soil surface, a 5-7 inch band over the open furrow (T-band), or in-furrow with the seed or transplant. May be applied through transplant water at time of transplanting. Apply broadcast over the soil surface for control of Army cutworm, Cutworm species, True armyworm or armyworm species.
Army cutworm Armyworm species Cutworm species Grubs Lettuce root aphid Root maggot True armyworm Wireworm	3.4 – 6.8	0.2 – 0.39	0.04 – 0.08	
At Plant Restrictions:				
<ul style="list-style-type: none"> Do not apply more than 0.1 lb ai/A per season as an at-plant application 				

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Lettuce root aphid Root Maggots Wireworms Army cutworm Armyworm species Cutworm species	PRE 3.4 – 6.8	PRE 0.04 – 0.08	HM-1601 Insecticide can be tank mixed and applied with PRE pesticides. Post Plant Soil Applied: Apply through drip or drip tape. Apply when soil is moist towards the end of the irrigation run.
Flea beetle larvae Grubs True Armyworm True armyworm	PPI 3.4 – 6.8	PPI 0.04 – 0.08	HM-1601 Insecticide can be tank mixed and applied with PPI labeled pesticides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended depth. Post Plant Soil Applied: Apply through drip or drip tape. Apply when soil is moist towards the end of the irrigation run.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Armyworms Corn Earworm Cutworms Crickets Cucumber Beetles Diamondback Moth Flea Beetles Grasshoppers Ground Beetles Imported Cabbageworm Japanese Beetle (adult)	2.8 – 8.5	0.033 - 0.1	Application by ground: For best results, full coverage is essential. Early season recommend 100 – 150 gallons of spray per acre. Late season recommend 200 – 250 gallons of spray per acre. For Root Weevil control, make a directed spray to the base of the plant. Spray up the vine 3 feet and the soil surface 1.5 to 2 feet on either side of the plant. Application by air for late season control of twospotted spider mites: Apply no less than 6.4 oz (0.1 lb ai) per application in a minimum of 10 gallons per acre.

Leafhoppers Loopers Saltmarsh Caterpillar Stink Bugs Tobacco Budworm Thrips Whitefly Wireworm (adults)			
Banks Grass Mite Carmin Mite Lygus species Pacific Spider Mite Twospotted Spider Mite	6.8 – 8.5	0.08 to 0.1	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 7 days apart. Do not apply within 7 days of harvest. 			

Leafy Brassica (Crop Subgroup 5B) and Turnip Greens Restrictions:

- Do not apply more than 0.4 lb ai/A per season including at-plant, PPI, PRE, and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

LEAFY PETIOLE VEGETABLES (Crop Subgroup 4B)

Including: Celery, Cardoon, Chinese celery, Celtuce, Florence fennel, Rhubarb, Swiss chard

At-Plant

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Lettuce Root Aphid Garden Symphlans Cutworm spp.	3.4 – 8.5	0.04 – 0.1	Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed. May be applied through transplant water at time of transplanting.

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species	PRE 3.4 – 8.5	PRE 0.04 – 0.1	HM-1601 Insecticide can be tank mixed and applied with labeled PRE pesticides.
Flea beetle larvae Grubs True Armyworm Wireworm True armyworm	PPI 8.5	PPI 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI labeled pesticides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended depth.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Armyworms Corn Earworm Crickets Cucumber Beetles Cutworms Diamondback Moth	3.4 – 8.5	0.04 - 0.1	Thorough coverage is necessary to attain acceptable control. Make application at the onset of infestation reaching locally determined economic thresholds.

Flea Beetles Ground Beetles Imported Cabbageworm Leafhoppers Loopers Saltmarsh Caterpillar Stink Bugs Thrips Tobacco Budworm Whitefly Wireworm (adults)			Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons of finished spray per acre with ground equipment. When applying by air, 1 to 2 quarts of emulsified oil may be substituted for 1 to 2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.
Banks Grass Mite Carmin Mite Lygus species Pacific Spider Mite Twospotted Spider Mite	6.8 – 8.5	0.08 to 0.1	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 7 days apart. Do not apply within 7 days of harvest. 			

Leafy Petiole Restrictions:

- Do not apply more than 0.5 lb. active ingredient per acre per season including at-plant, PPI, PRE and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

MAYHAW

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
White Grub Wireworm	PRE 8.5	PRE 0.1	HM-1601 Insecticide can be tank mixed and applied with labeled PRE pesticides.
	PPI 8.5	PPI 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI labeled pesticides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended depth.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Plum Curculio	6.8 - 8.5	0.08 - 0.1	Apply foliar treatments in at least 28 gallons per acre

Foliar Restrictions:

- Apply no more than once every 7 days.
- Do not apply within 30 days of harvest

Mayhaw Restrictions:

- Do not apply more than 0.2 lb ai per acre per season including at-plant, PRE, PPI and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

OKRA

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Armyworm Cutworm spp Flea beetle larvae Grape colaspis Root maggot Wireworm White Grub	3.4 - 6.8	0.2 – 0.39	0.04 - 0.08	Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), in-furrow with the seed, or broadcast to the soil surface.
At Plant Restrictions:				
<ul style="list-style-type: none"> Do not apply more than 0.1 lb ai/A per season as an at-plant application 				

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Cutworm spp	PRE 3.4 - 8.5	PRE 0.04 - 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI or PRE herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth.
Cutworm species Flea beetle larvae Wireworm White Grub Grape colaspis Root maggot	PPI 3.4 - 8.5	PPI 0.04 - 0.1	

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Armyworms Corn earworm Cucumber Beetles Cutworms European Corn Borer Flea Beetles Japanese Beetle (Adult) Leafminers Loopers Stink bugs Thrips Whitefly	2.8 – 8.5	0.033 – 0.1	Apply as needed using sufficient water to obtain uniform coverage. Apply with ground equipment using a minimum of 10 gallons of finished spray per acre or a minimum of 2 gallons per acre by aircraft.
Broad Mite Carmine Mite Lygus species Twospotted Spider Mite	6.8 – 8.5	0.08 – 0.1	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 7 days apart. Do not apply within 7 days of harvest. 			

Okra Restrictions:

- Do not apply more than 0.2 lb ai/A per season including At-Plant, PRE & PPI, and Foliar applications of HM-1601 Insecticide and other bifenthrin products.

PEANUT

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Thrips, Leafhoppers, Aphids, and Wireworms	6.8 – 8.5	0.39 – 0.49	0.08 – 0.1	Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Beet Armyworm Corn Earworm Cutworm species Fall Armyworm Grasshoppers Green Cloverworm Leafhoppers Lesser Cornstalk borer Loopers Rednecked peanut worm Southern Armyworm Southern Corn Rootworm Stink Bugs Threecornered alfalfa hopper Velvetbean caterpillar Yellowstriped armyworm	2.8 – 8.5	0.033 – 0.1	Apply in a minimum of 10 gallons per acre with ground equipment or 2 gallon per acre by air craft
Aphids Spider Mites Thrips Whitefly	6.8 – 8.5	0.08 – 0.1	

Foliar Restrictions:

- Do not make applications less than 14 days apart
- Do not apply within 14 days of harvest.
- Do not feed green immature plants and peanut hay to livestock.

Peanut Restrictions:

- Do not apply more than 0.5 lb ai per acre per season including at-plant, PPI, PRE and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

PEARS

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Codling Moth Cutworms Green Fruitworm Leafhoppers Leafminers Leafrollers Lygus species Plant Bugs Plum Curculio San Jose Scale (Crawlers) Stink Bugs Tarnished Plant Bugs	3.4 – 17.1	0.04 – 0.2	<p>Application by ground: Apply as a dilute (minimum of 200 gallons of finished spray per acre) or concentrate (minimum of 50 gallons of finished spray per acre) spray in sufficient water to provide thorough coverage.</p> <p>Application by air: Apply the specified dosage in a minimum of 10 gallons per acre by air.</p>
Twospotted Spider mite Yellow Mite	5.1 – 17.1	0.06 – 0.2	
European Red Mite	6.8 – 17.1	0.08 – 0.2	
<p>Foliar Restrictions:</p> <ul style="list-style-type: none"> Do not make applications less than 30 days apart. Apply up to 14 days prior to harvest. Do not graze livestock in treated orchards or cut treated cover crops for feed 			

Pear Restrictions:

- Do not apply more than 0.5 pound active per acre per season including at-plant, PRE, PPI and foliar applications of HM-1601 Insecticide and other bifenthrin containing products with no more than 0.45 pound active per acre applied after petal fall.

PEPPERS (BELL and NON-BELL) & PEPINO

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Army Cutworm Armyworm species Cutworm species Flea beetle larvae Grubs Pepper maggot Root aphid Root maggot Stalk borer True armyworm Wireworm	3..4 - 6.8	0.2 – 0.39	0.04 - 0.08	<p>Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the transplant or seed. May be applied through transplant water at time of transplanting.</p> <p>Apply broadcast over the soil surface for control of Army cutworm, Cutworm species, True armyworm, Armyworm species, or Stalk borer</p>
<p>At Plant Restrictions:</p> <ul style="list-style-type: none"> Do not apply more than 0.1 lb ai/A per season as an at-plant application 				

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species Flea beetle larvae Grubs	PRE 8.5	PRE 0.1	HM-1601 Insecticide can be tank mixed and applied with PRE pesticides Post Plant Soil Applied: Apply through drip or drip tape. Apply when soil is moist towards the end of the irrigation run.
True Armyworm Wireworm True armyworm	PPI 3.4 - 8.5	PPI 0.04 - 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI labeled pesticides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended depth. Post Plant Soil Applied: Apply through drip or drip tape. Apply when soil is moist towards the end of the irrigation run.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Armyworms (Including Beet) Armyworm Fall Armyworm Southern Cabbage Looper Colorado Potato Beetle Corn Earworm Cucumber Beetle Cutworms European Corn Borer Flea Beetle Leafminers Loopers Pepper weevil Plant Bug Stink Bug Thrips Tomato Hornworm Tomato Pinworm Vegetable Leafminer Whitefly Yellowstriped Armyworm	2.8 – 8.5	0.033 – 0.1	Thorough coverage is necessary to attain acceptable control. Make application at the onset of infestation reaching locally determined economic thresholds. Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1 to 2 quarts of emulsified oil may be substituted for 1 to 2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.
Broad Mite Carmine Mite Lygus species Pacific Spider Mite Twospotted Spider Mite	6.8 – 8.5	0.08 – 0.1	
Foliar Restrictions: <ul style="list-style-type: none"> Do not make applications less than 7 days apart. Do not apply within 7 days of harvest. 			

Pepper (Bell and Non-Bell) Restrictions:

- Do not apply more than 0.2 lb ai/A per season including at-plant, PPI, PRE and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

ROOT CROPS (Except Sugar Beets and Garden Beets) (Crop Subgroup 1B)

Including: Burdock Edible, Carrot, Celeriac, Chervil Turnip Rooted, Chicory, Garden Beet, Ginseng, Horseradish, Parsley Turnip Rooted, Parsnip, Radish, Radish Oriental, Rutabaga, Salsify, Salsify Black, Salsify Spanish, Skirret, and Turnip.

At-Plant

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Crown and Root Aphids Flea Beetles Cutworms Seedcorn and Root Maggots Wireworms	8.5	0.1	Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed. May be applied through transplant water at time of transplanting.

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Crown and Root Aphids	PRE 8.5	PRE 0.1	HM-1601 Insecticide can be tank mixed and applied with PRE pesticides
Flea Beetles Cutworms Seedcorn and Root Maggots Wireworms	PPI 8.5	PPI 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI labeled herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended depth

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Beet Armyworm Celery Leaf Tier Corn Earworm Cross Striped Cabbageworm Cutworms Diamondback Moth European Corn Borer Fall Armyworm Fire Ants Flea Beetles Green Cloverworm Hornworms Imported Cabbageworm Loopers Southern Armyworm Spider Mites	6.8 – 8.5	0.08 – 0.1	Thorough coverage is necessary to attain acceptable control. Make application at the onset of infestation reaching locally determined economic thresholds. Apply foliar treatments in at least 25 gallons per acre.

Tobacco Budworm Velvetbean Caterpillar Whitefly Yellowstriped Armyworm			
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 7 days apart. Do not apply within 21 days of harvest. 			

Root Crops Restrictions:

- Do not apply more than 0.5 lb ai per acre per season including at-plant, PRE, PPI and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

GARDEN BEETS.

At-Plant

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Crown and Root Aphids Flea Beetles Cutworms Seedcorn and Root Maggots Wireworms	8.5	0.1	Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed. May be applied through transplant water at time of transplanting.

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Crown and Root Aphids	PRE 8.5	PRE 0.1	HM-1601 Insecticide can be tank mixed and applied with PRE pesticides
Flea Beetles Cutworms Seedcorn and Root Maggots Wireworms	PPI 8.5	PPI 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI labeled herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth. Incorporation depth should be close to the intended depth

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Garden Beet Pests Only Aphids Fire Ants Flea Beetles Lepidopterous Larvae Spider Mites Whitefly	6.8 – 8.5	0.08 – 0.1	Thorough coverage is necessary to attain acceptable control. Make application at the onset of infestation reaching locally determined economic thresholds. Apply foliar treatments in at least 25 gallons per acre.
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 7 days apart. Do not apply within 1 days of harvest. 			

Garden Beets Restrictions:

- Do not apply more than 0.4 lb ai per acre per season including at-plant, PRE, PPI and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

Grass Forage, Fodder, and Hay Group and Grass Grown for Seed, Pasture and Rangeland

Including: bahiagrass, barnyardgrass, bentgrass, Bermudagrass, Kentucky bluegrass, big bluestem, smooth bromegrass, buffalograss, reed canarygrass, centipedegrass, crabgrass, cupgrass, dallisgrass, sand dropseed, Kentucky fescue, meadow foxtail, eastern gramagrass, side-oats grama, guinea grass, Indian grass, Johnsongrass, lovegrass, napiergrass, oatgrass, orchardgrass, pangolagrass, paspalum, redtop, Italian ryegrass, St. Augustine grass, sprangletop, squirreltailgrass, stargrass, switchgrass, timothy, crested wheatgrass, wildrye grass and zoysia grass. Also included are sudangrass and sorghum forages and their hybrids.

NOTE: Use on grasses is limited to the States of Idaho, Oregon, and Washington.

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species Grape colaspis Grubs Root maggot True armyworm Wireworm	8.5	0.39	0.1	Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast over the soil surface for control of Army cutworm, Cutworm species, True armyworm, or Armyworm species. Apply in a minimum of 5 gallons per acre when applied as in in-furrow or T-band application.

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species	PRE 8.5	PRE 0.1	HM-1601 Insecticide can be tank mixed and applied with PRE pesticides. Apply in a minimum of 10 gallons per acre.
Grape colaspis Grubs Root maggot True armyworm Wireworm (PPI only)	PPI 8.5	PPI 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth. Apply in a minimum of 10 gallons per acre.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Alfalfa Caterpillar Alfalfa Looper Alfalfa Weevil Banks Grass Mite Blue Alfalfa Aphid ¹ Carmine Mite Cutworms Egyptian Alfalfa Weevil (larvae & adult) Flea Beetles Green Cloverworm Green Peach Aphid ¹ Hornworms Lygus species Meadow Spittlebug Pea Aphid ¹ Potato Leafhopper Spotted Alfalfa Aphid ¹ Threecornered Alfalfa Hopper Velvetbean Caterpillar Webworms Armyworm, southern Armyworm, true Armyworm, yellowstriped Ant spp. Cereal Leaf Beetle Chinch Bug Cricket Grass Mealybug Grasshoppers Range caterpillar Stink Bugs Armyworm, fall Black Grass Bug Hunting Bill Bug Plant Bug spp.	8.5	0.1	Apply as insects appear in sufficient volume of water to ensure thorough coverage of foliage. Use higher recommended dosage for increased pest pressure or for increased residual pest control. Do not exceed maximum allowable rate. Apply in a minimum of 2 gallons finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. Higher volumes of finished spray may improve insect control under high temperatures, when foliage is dense and/or when insect pressure is high.
¹ Aphid control may be variable depending on species present and host-plant relationships			
Foliar Restrictions: <ul style="list-style-type: none"> • Do not make applications less than 14 days apart. • Do not apply within 30 days of harvest for forage and hay. 			

Grass Forage, Fodder, Hay Group and Grass Grown for Seed, Pasture, and Rangeland Restrictions:

Do not apply more than 0.2 lb. active ingredient to Grass Forage, Fodder, and Hay Group and Grass Grown for Seed, Pasture and Rangeland including At-Plant, PRE & PPI, and Foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

SOD FARMS

At-Plant

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Cutworms ¹ White Grub Wireworm Crickets Earwigs Ants Chinch Bugs ⁵ Imported Fire Ants ⁸	8.5	0.1	Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed.

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Cutworms ¹ White Grub Wireworm Crickets Earwigs Ants Chinch Bugs ⁵ Imported Fire Ants ⁸	PRE 8.5	PRE 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI and PRE herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth.
	PPI 8.5	PPI 0.1	

Foliar

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Armyworms ¹ Cutworms ¹ Sod Webworm ¹	2.8 – 4.35	0.066 – 0.1	0.033 – 0.05	Apply as a broadcast treatment. Use higher volumes up to 10 gallons of carrier per 1000 square feet to get uniform coverage when treating dense grass foliage. Irrigation to treated area within a few hours following application can improve efficacy to sub-surface pests including mole crickets. The application rates listed in the following table will provide excellent control of the respective pests under typical conditions. However, at the discretion of the applicator, HM-1601 Insecticide may be applied at up to 0.4 fluid oz. per 1000 square feet to control each of the pests listed in this table. The higher application
Annual Bluegrass Weevil (Hyperodes) (Adult) ² Banks Grass Mite ⁶ Billbugs (Adult) ³ Black Turfgrass Ataenius (Adult) ⁴ Crickets Earwigs Fleas (Adult) Grasshoppers Mealybugs Mites ⁶	4.35 – 8.7	0.1 – 0.2	0.05 – 0.1	

Ants Chinch Bugs ⁵ Fleas (Larvae) ⁷ Imported Fire Ants ⁸ Japanese Beetle (Adult) Mole Cricket (Adult) ⁹ Mole Cricket (Nymph) ¹⁰ Ticks ¹¹	8.7 -17.42	0.2 – 0.4	0.1 – 0.2	rates should be used when maximum residual control is desired or heavy pest populations occur.
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¹**Armyworms, Cutworms and Sod Webworms:** To ensure optimum control, delay watering (irrigation) or mowing for 24 hours after application. If the grass area is being maintained at a mowing height of greater than 1 inch, then higher application rates (up to 0.4 fluid oz. per 1000 square feet) may be required during periods of high pest pressure.

²**Annual Bluegrass Weevil (*Hyperodes*) adults:** Applications should be timed to control adult weevils as they leave their overwintering sites and move into grass areas. This movement generally begins when *Forsythia* is in full bloom and concludes when flowering dogwood (*Cornus florida*) is in full bloom. Consult your State Cooperative Extension Service for more specific information regarding application timing.

³**Billbug adults:** Applications should be made when adult billbugs are first observed during April and May. Degree day models have been developed to optimize application timing. Consult your State Cooperative Extension Service for information specific to your region. In temperate regions, spring applications targeting billbug adults will also provide control of over-wintered chinch bugs.

⁴**Black Turfgrass Ataenius adults:** Applications should be made during May and July to control the first and second generation of black turfgrass ataenius adults, respectively. The May application should be timed to coincide with the full bloom stage of Vanhoutte spiraea (*Spiraea vanhouttei*) and horse chestnut (*Aesculus hippocastanum*). The July application should be timed to coincide with the blooming of Rose of Sharon (*Hibiscus syriacus*).

⁵**Chinch Bugs:** Chinch Bugs infest the base of grass plants and are often found in the thatch layer. Irrigation of the grass area before treatment will optimize the penetration of the insecticide to the area where the chinch bugs are located. Use higher volume applications if the thatch layer is excessive or if a relatively long mowing height is being maintained.

Chinch Bugs can be one of the most difficult pests to control in grasses and the higher application rates (up to 0.4 fluid oz. per 1000 square feet) may be required to control populations that contain both nymphs and adults during the middle of the summer.

⁶**Mites:** To ensure optimal control of eriophyid mites, apply in combination with the labeled application rate of a surfactant. A second application, five to seven days after the first, may be necessary to achieve acceptable control.

⁷**Flea larvae:** Flea larvae develop in the soil of shaded areas that are accessible to pets or other animals. Use a higher volume application when treating these areas to ensure penetration of the insecticide into the soil. Note: if the lawn area is being treated with this product at 0.1 fluid oz. per 1000 square feet for adult flea control, then the larval application rate may be achieved by increasing the application volume two- to four-fold.

⁸**Imported Fire Ants:** Control will be optimized by combining broadcast applications that will control foraging workers and newly mated fly-in queens with mound drenches that will control existing colonies. If the soil is not moist, then it is important to irrigate before application or use a high volume application. Broadcast treatments should apply 0.4 fluid oz. per 1,000 square feet. Mounds should be treated by diluting 0.05 fluid oz of HM-1601 Insecticide per gallon of water and applying 1 to 2 gallons of finished spray per mound. The mounds should be treated with sufficient force to break their apex and allow the insecticide solution to flow into the ant tunnels. A four foot diameter circle around the mound should also be treated. For best results, apply in cool weather (65 - 80°F) or in early morning or late evening hours.

⁹**Mole Cricket adults:** Achieving acceptable control of adult mole crickets is difficult because preferred grass areas are subject to continuous invasion during the early spring by this extremely active stage. Applications should be made as late in the day as possible and should be watered in with up to 0.5 inches of water immediately after treatment. If the soil is not moist, then it is important to irrigate before application to bring the mole crickets closer to the soil surface where contact with the insecticide will be maximized. Grass areas that receive pressure from adult mole crickets should be treated at peak egg hatch to ensure optimum control of subsequent nymph populations (see below).

¹⁰**Mole Cricket nymphs:** Grass areas that received intense adult mole cricket pressure in the spring should be treated immediately prior to peak egg hatch. Optimal control is achieved at this time because young nymphs are more susceptible to insecticides and they are located near the soil surface where the insecticide is most concentrated. Control of larger, more damaging, nymphs later in the year may require both higher application rates and more frequent applications to maintain acceptable control. Applications should be made as late in the day as possible and should be watered in with up to 0.5 inches of water immediately after treatment. If the soil is not

moist, then it is important to irrigate before application to bring the mole crickets closer to the soil surface where contact with the insecticide will be maximized.

¹¹Ticks (Including ticks that may transmit Lyme Disease and Rocky Mountain Spotted fever): Do not make spot applications. Treat the entire area where exposure to ticks may occur. Use higher spray volumes when treating areas with dense ground cover or heavy leaf litter. Ticks may be reintroduced from surrounding areas on host animals.

Retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure. Repeat application is necessary only if there are signs of renewed activity. Repeat application must be limited to no more than once per seven days.

Deer ticks (*Ixodes sp.*) have a complicated life cycle that ranges over a two year period and involves four life stages. Applications should be made in the late fall and/or early spring to control adult ticks that are usually located on brush or grass above the soil surface and in mid to late spring to control larvae and nymphs that reside in the soil and leaf litter.

American dog ticks may be a considerable nuisance in suburban settings, particularly where homes are built on land that was previously field or forest. These ticks commonly congregate along paths or roadways where humans are likely to be encountered. Applications should be made as necessary from mid-spring to early fall to control American dog tick larvae, nymphs and adults.

Sod Farm Restrictions:

- In New York State, this product may NOT be applied to any grass or turf area within 100 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch).
- In New York State, make a single repeat application of this product if there are signs of renewed insect activity, but not sooner than two weeks after the first application.

SOYBEANS

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Rootworm larvae	6.8 - 8.5	0.2 - 0.39	0.04 – 0.08	Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast over the soil surface for control of Army cutworm, Cutworm species, True armyworm, or Armyworm species.
Army cutworm Armyworm species Cutworm species Grape colaspis Grubs Root maggot Seed corn beetle Seedcorn maggot True armyworm Wireworm Bean Leaf Beetle Larvae	3.4 – 6.8	0.2 – 0.39	0.04 -0.08	
At Plant Restrictions:				
<ul style="list-style-type: none"> • Do not apply more than 0.1 lb ai/A per season as an at-plant application 				

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Armyworm species Black Cutworm	PRE 3.4	PRE 0.04	HM-1601 Insecticide can be tank mixed and applied with PRE herbicides.
Armyworm species Black Cutworm Seed corn beetle	PPI 4 – 5.3	PPI 0.047 – 0.062	HM-1601 Insecticide can be tank mixed and applied with PPI herbicides.

Stalkborer Bean leaf Beetle Larvae Seed corn Maggot White Grub Wireworm Seedcorn Maggot			Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth.
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Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Alfalfa Caterpillar Aphids Armyworms Bean Leaf Beetle Blister Beetle species Corn Earworm Corn Rootworm Adult Cowpea Curculio Cucumber Beetle Adult Cutworms Dectes Stem Borer European Corn Borer False Cinch Bug Flea Beetle Grasshoppers Green cloverworm Hornworms Imported Cabbageworm Japanese Beetle Adult Leaf Skeletonizer species Leafhoppers Leafminers Adults Lesser Cornstalk Borer Loopers Kudzu Bug Mexican Bean Beetle Painted Lady (Thistle) Caterpillar Pea Leaf Weevil Saltmarsh Caterpillar Seedcorn Maggot Adult Silverspotted Skipper Spittlebug Stink Bug Three Cornered Alfalfa Hopper Thrips Tobacco Budworm	2.8 - 8.5	0.033 - 0.1	Apply in a minimum of 10 gallons per acre with ground equipment or 2 gallon per acre by aircraft. Pyrethroid resistance is common for Beet Armyworm and Tobacco Budworm. Please consult your local or state agricultural authority to determine if resistant pest populations are in your area. If so, refer to the resistance management statement in the DIRECTIONS FOR USE section of this label.

Velvetbean Caterpillar Webworm Woollybear Caterpillar			
Lygus species Whitefly Twospotted spider mite	6.8 – 8.5	0.08 – 0.1	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 30 days apart. Do not apply within 18 days of harvest. 			

Soybean Restrictions:

- Do not apply more than 0.3 lb ai/A per season including At-Plant, PRE & PPI, and Foliar applications of this and other bifenthrin products.

SPINACH

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Rootworm larvae Garden Symphylans	6.8 - 8.5	0.39 - 0.49	0.08 – 0.1	Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast over the soil surface for control of Army cutworm, Cutworm species, True armyworm, or Armyworm species.
Army cutworm Armyworm species Cutworm species Grubs Root maggot Seedcorn maggot True armyworm Wireworm	3.4 – 6.8	0.2 – 0.39	0.04 -0.08	
At Plant Restrictions:				
<ul style="list-style-type: none"> Do not apply more than 0.1 lb ai/A per season as an at-plant application 				

PPI & PRE

PEST	USE RATES	
	Fluid oz/acre	Pound a.i./acre
Seed Corn Maggot Wireworms Garden Symphylans	PPI 3.4 – 6.8	PPI 0.04 – 0.08

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Armyworms Colorado Potato Beetle Corn earworm Cucumber Beetles Cutworms European Corn Borer Flea Beetles Leafminers Loopers Pepper Weevil Tomato Hornworm Tomato Pinworm Thrips Whitefly	2.8 - 8.5	0.033 - 0.1	For control of whiteflies, apply foliar treatments of HM-1601 Insecticide by ground or air at rates of up to 0.1 lb active per acre at minimum 7 day intervals up to a maximum of 4 applications. Do not apply within 40 days of harvest. For control of fire ants apply HM-1601 Insecticide to the soil (at planting) or as a foliar treatment by ground or air at rates of up to 0.1 lb active per acre at minimum 7 day intervals up to a maximum of 4 applications. Apply the specified dosage in 5-50 gallons of finished spray per acre by air or 10-50 gallons finished spray per acre by ground.
Banks Grass Mite Broad Mite Carmine Mite Fire Ants Lygus species Pacific Spider Mite Twospotted spider mite	6.8 – 8.5	0.08 – 0.1	
Foliar Restrictions: <ul style="list-style-type: none"> Do not make applications less than 7 days apart. Do not apply within 40 days of harvest. 			

Spinach Restrictions:

- Do not apply more than 0.4 lb ai/A per season including At-Plant, PRE & PPI, and Foliar applications of this and other bifenthrin products.

SUCCULENT PEAS AND BEANS (Crop Subgroups 6A and 6B)

Includes: Pea (*Pisum* spp.): Dwarf pea, Edible-pod pea, English pea, Garden pea, Green pea, Snow pea, Sugar snap pea, Pigeon pea; Bean (*Phaseolus* spp.): Broadbean (succulent), Lima bean (green), Runner bean, Snap bean, Wax bean; Bean, *Vigna* spp.): Asparagus bean, Blackeyed pea, Chinese longbean, Cowpea, Moth bean, Southern pea, Yardlong bean, Jackbean, Soybean (immature seed), Sword bean, purple hulled pea

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Rootworm larvae	6.8 - 8.5	0.39 – 0.49	0.08 – 0.1	Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast over the soil surface for control of Army cutworm, Cutworm species, True armyworm, or Armyworm species.
Army cutworm Armyworm species Cutworm species Grape colaspis Grubs Root maggot Seedcorn maggot	3.4 – 6.8	0.2 – 0.39	0.04 -0.08	

True armyworm Wireworm				
At Plant Restrictions:				
<ul style="list-style-type: none"> Do not apply more than 0.1 lb ai/A per season as an at-plant application 				

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species Grape colaspis Grubs Root maggot True armyworm Wireworm (PPI only)	PRE 6.8 – 8.5	PRE 0.08 – 0.1	HM-1601 Insecticide can be tank mixed and applied with PRE herbicides. Post Plant Soil Applied: Apply through drip or Drip Tape. Apply when soil is moist towards the end of the irrigation run.
	PPI 6.8 – 8.5	PPI 0.08 – 0.1	HM-1601 Insecticide can be tank mixed and applied with PPI herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth. Apply in a minimum of 10 gallons per acre. . Post Plant Soil Applied: Apply through drip or Drip tape. Apply when soil is moist towards the end of the irrigation run.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aster Flea Beetle Leafhopper	2.1 - 8.5	0.025 - 0.1	Apply in a minimum of 2 gallons finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment.
Adult Sap Beetle Alfalfa Caterpillar Aphids Armyworm, Beet Armyworm, Fall Armyworm, Southern Armyworm, Yellowstriped Bean Leaf Beetle Cloverworm Corn earworm Corn Rootworm Adult Cucumber Beetle Cutworms European Corn Borer Grasshoppers Japanese Beetle Loopers Pea Leaf Weevil Pea Weevil Plant Bug Stink Bugs Tarnished Plant Bug	2.8 – 8.5	0.033 – 0.1	When applying by air, 1 – 2 quarts of emulsified oil may be substituted for 1 – 2 quarts of water in the finished spray. Thorough coverage is essential to achieve control. Make application at the onset of infestation reaching locally determined economic threshold.

Thrips Webworms Western Bean Cutworm Whitefly			
Banks Grass Mite Carmine Mite Lygus species Twospotted spider mite	6.8 – 8.5	0.08 – 0.1	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 3 days apart. Do not apply within 3 days of harvest. 			

Succulent Peas and Beans (Crop Subgroups 6A and 6B) Restrictions:

- Do not apply more than 0.2 lb ai/A per season including At-Plant, PRE & PPI, and Foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

TOBACCO

PRE-TRANSPLANT and AT-TRANSPLANT

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Armyworm species Cutworm species Flea beetle larvae Mole cricket Stalkborer White grubs Wireworm	3.4 – 6.8	0.2 – 0.39	0.04 -0.08	<p>Pre-transplant soil applications: Use of suitable equipment to incorporate into top 4” of the soil is required to control below ground pests.</p> <p>At-transplant water treatment application: Apply 0.0625 to 0.1 pound ai/A in a water treatment application volume of 10 to 200 gal/A.</p> <p>May be tank mixed with Command, Spartan, and other herbicides approved for tobacco use.</p>
Pre-Transplant & At-Transplant Restrictions:				
<ul style="list-style-type: none"> Do not apply later than layby 				

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphid spp.* Armyworm spp. Chinch Bugs Cutworm spp. Flea Beetle (Adults) Grasshoppers Green Bugs Japanese Beetles Stink Bugs Thrips Whiteflies Tarnished plant bugs	3.4 – 8.5	0.04 -0.1	<p>Apply 0.04 to 0.10 lb ai/A per foliar application up to, and including, layby in a minimum of 10 gal/A. May be tank mixed with Command, Spartan and other herbicides approved for tobacco use.</p> <p>*See resistance statement under “Directions for Use” section.</p>
Hornworm Tobacco Budworm	6.8 -8.5	0.08 – 0.1	

Spider mites Lygus spp	8.5	0.1	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make more than 2 foliar applications per seas Do not apply later than layby. 			

Tobacco Restrictions:

- Do not apply more than 0.2 lb ai/A per season including at-plant, PRE, PPI and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

TOMATOES, TOMATILLOS, & GROUNDCHERRIES

At-Plant

PEST	USE RATES			DIRECTIONS
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species Flea beetle larvae Grubs Root maggot Stalkborer True armyworm Wireworm	3.4 – 6.8	0.2 – 0.39	0.04 -0.08	Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the transport or seed. May be applied through transplant water at time of transplanting. Apply broadcast to the soil surface for control of Army cutworm, Cutworm species, True armyworm, Armyworm species, or Stalkborer.
At Plant Restrictions:				
<ul style="list-style-type: none"> Do not apply more than 0.1 lb ai/A per season as an at-plant application 				

PPI & PRE

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Army cutworm Armyworm species Cutworm species Flea beetle larvae Garden symphylans Grubs	PRE 6.8	PRE 0.08	HM-1601 Insecticide can be tank mixed and applied with PRE herbicides. Post Plant Soil Applied: Apply through drip or Drip Tape. Apply when soil is moist towards the end of the irrigation run.
True Armyworm Wireworm True armyworm	PPI 3.4 – 6.8	PPI 0.04 – 0.08	HM-1601 Insecticide can be tank mixed and applied with PPI herbicides. Incorporation of HM-1601 Insecticide should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth. Apply in a minimum of 10 gallons per acre. . Post Plant Soil Applied: Apply through drip or Drip tape. Apply when soil is moist towards the end of the irrigation run.

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Aphids Armyworms (including Beet)	2.8 – 6.8	0.033 – 0.08	Apply in a minimum of 2 gallons finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment.

Armyworm, Fall Armyworm, Southern Bean Leaf Beetle Cabbageworm Carmin Mite Cloverworm Corn earworm Corn Rootworm Cucumber Beetles Cutworms Diamondback Moth European Corn Borer Flea Beetles Flea Hopper Grasshopper Japanese Beetle (Adult) Leafhoppers Loopers Lygus species Melonworm Pea Weevil Pea Leaf Weevil Pickleworm Plant Bug Rindworm Salt Marsh Caterpillar Sap Beetle Seedpod Weevil Squash Bugs Stink bug species Tobacco Budworm Tarnished Plant Bug Thrips Whitefly Yellowstriped Armyworm			Thorough coverage is essential to achieve control. Make application at the onset of infestation reaching locally determined economic threshold.
Twospotted spider mite	6.8 -8.5	0.08 – 0.1	
Foliar Restrictions: <ul style="list-style-type: none"> Do not make applications less than 10 days apart. Do not apply within 1 day of harvest. 			

Tomato, Tomatillo, and Groundcherry Restrictions:

- Do not apply more than 0.40 lb ai/A per season including at-plant, PRE, PPI and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

TREE NUTS

Including: African nut-tree; almond; beechnut; Brazil nut; Brazilian pine; bunya; bur oak; butternut; Cajou nut; candlenut; cashew; chestnut; chinquapin; coconut; coquito nut; dika nut; ginkgo; Guiana chestnut; hazelnut (filbert); heartnut; hickory nut; Japanese horse-chestnut; macadamia nut; mongongo nut; monkey-pot; monkey puzzle nut; Okari nut; Pachira nut; peach palm nut; pecan; pequi; Pili nut; pine nut; pistachio; Sapucaia nut; tropical almond; walnut, black; walnut, English; yellowhorn; cultivars, varieties, and/or hybrids of these

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Black Pecan Aphid Codling Moth Filbert Worm Hickory Shuckworm Leaffooted Bugs Navel Orangeworm Oblique Banded Leafroller Peach Twig Borer Pecan Leaf Casebearer Pecan Nut Casebearer Pecan Phylloxera Plant Bugs Stink Bugs Walnut Aphid Yellow Pecan Aphid	4.3 – 17.1	0.05 – 0.2	Apply by ground or air equipment using sufficient water to obtain full coverage of foliage. Apply as a dilute (minimum of 200 gallons of finished spray per acre) or concentrate (minimum of 50 gallons of finished spray per acre) by ground or apply the specified amount in a minimum of 10 gallons of finished spray per acre by air
European Red Mite Pecan Weevil Spider Mite species	6.8 – 17.1	0.08 – 0.2	
Fire ants Walnut Husk Fly	8.5 – 17.1	0.1 – 0.2	
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make applications less than 15 days apart. Do not apply within 21 days of harvest for pecans and 7 days for all other registered tree nut crops. Do not graze livestock in treated orchards or cut treated cover crops for feed. 			

Tree Nuts Restrictions:

- Do not apply more than 0.5 lb active ingredient (1 quart) per acre per season including at-plant, PRE, PPI and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

TUBEROUS AND CORM VEGETABLES (Crop Subgroup 1C)

Including: Potato, Sweet potato, Arracacha, Arrowroot, Chinese artichoke, Jerusalem artichoke, Edible canna, Cassava (bitter and sweet), Chayote (root), Chufa, Dasheen (taro), Ginger, Leren, Tanier, Tumeric, Yam bean, True yam

At-Plant

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Grape colaspis Rootworms Sweet potato flea beetle White grub Wireworms	12.75 – 25.5	0.15 – 0.3	HM-1601 Insecticide may be applied as a soil incorporated broadcast, directed bed spray or a T-band spray into the planting furrow for the control of wireworms, sweet potato flea beetle, and white grubs. Apply HM-1601 Insecticide at the rate of 0.15 to 0.3 pounds active ingredient (12.75 to 25.5 fluid ounces formulated) per acre in a minimum of 10 gallons per acre of spray.
At Plant Restrictions:			
<ul style="list-style-type: none"> Do not apply more than 0.3 lb ai/A per season as an at-plant application. 			

Lay-By

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Grape colaspis Rootworms White grub Wireworms	12.75 – 25.5	0.15 – 0.3	HM-1601 Insecticide may be applied as one or more soil directed and incorporated treatments at cultivation or layby for the control of wireworms and white grubs. Apply HM-1601 Insecticide to the drill area and incorporate by cultivation equipment set to throw soil towards the drill area. Apply in a minimum of 10 gallons per acre of spray.

PPI

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Grape colaspis Rootworms White grub Wireworms	12.75 – 25.5	0.15 – 0.3	Apply HM-1601 Insecticide to the transplant area and incorporate to planting depth. Apply HM-1601 Insecticide in a minimum of 10 gallons per acre of spray. May be applied as a broadcast application or an incorporated band application

Foliar

PEST	USE RATES		DIRECTIONS
	Fluid oz/acre	Pound a.i./acre	
Banded Cucumber beetle Black flea beetle Corn wireworm Cucumber beetle Japanese beetle grubs June beetle Rootworms Southern potato wireworm Sugarcane beetle Sweet potato flea beetle Sweet potato weevil Tobacco wireworm Whitefringed beetle White grub	2.8 – 8.5	0.033 – 0.1	Apply in a minimum of 3 gallons finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. HM-1601 Insecticide may be applied as a foliar spray for the control of the adult life stages of flea beetles, click beetles (wireworms), cucumber beetles (rootworms), white fringed beetles and May/June beetles (white grubs).
Foliar Restrictions:			
<ul style="list-style-type: none"> Do not make more than 2 foliar applications per season Do not make applications less than 21 days apart. Do not apply within 21 days of harvest 			

Tuberous and Corm Vegetables (Crop Subgroup 1C) Restrictions:

- Do not apply more than 0.5 lb ai/A per season including soil, lay-by, at-plant, PPI and foliar applications of HM-1601 Insecticide and other bifenthrin containing products.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage

If storing this product below freezing, user should shake or roll the container to ensure proper product consistency.

Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. **Call CHEMTREC (Transportation and Spills): (800) 424-9300.**

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

Pesticide Disposal

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

Container Handling

Metal or Plastic Container: Non-refillable container (in sizes 5 gallons or less) - Do not reuse or refill this container. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank and drain for 10 seconds after flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds, pour rinsate into application equipment or mix tank or store rinsate for later use or disposal. Drain for 10 seconds after flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Do not cut or weld metal containers.

Non-refillable container (in sizes greater than 5 gallons) - Do not reuse or refill this container. Triple rinse or pressure rinse. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip back and forth several times. Turn the container over onto its other end and tip back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available, or reconditioning, or puncture and dispose of on a sanitary landfill, or by other procedures approved by State and local authorities. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available, or reconditioning, or puncture and dispose of on a sanitary landfill, or by other procedures approved by State and local authorities.

Returnable/Refillable Containers (if other than U-Turn Container): Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

CONDITIONS OF SALE - LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

Read the Conditions of Sale - Warranty and Limitations of Liability and Remedies before using this product. If the terms are not acceptable, return the product, unopened, and the full purchase price will be refunded.

The directions on this label are believed to be reliable and must be followed carefully. Insufficient control of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions or the failure to follow the label directions or good application practices, all of which are beyond the control of Helena Chemical Company (the "Company") or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. The Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use subject to the factors noted above which are beyond the control of the Company. To the extent consistent with applicable law, the Company makes no other warranties or representations of any kind; express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose, and no such warranty shall be implied by law.

To the extent consistent with applicable law, the exclusive remedy against the Company for any cause of action relating to the handling or use of this product shall be limited to, at Helena Chemical Company's election, one of the following:

1. Refund of the purchase price paid by buyer or user for product bought, or
2. Replacement of the product used

To the extent consistent with applicable law, the Company shall not be liable and any and all claims against the Company are waived for special, indirect, incidental, or consequential damages or expense of any nature, including, but not limited to, loss of profits or income. The Company and the seller offer this product and the buyer and user accept it, subject to the foregoing conditions of sale and limitation of warranty, liability and remedies.

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